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BEFORE THE PUBLIC UTILITIES COMMISSION
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Order Instituting Rulemaking into Policies to Promote a Partnership Framework between Energy Investor Owned Utilities and the Water Sector to Promote Water-Energy Nexus Programs.	Rulemaking R.13-12-011

COMMENTS OF THE GREEN POWER INSTITUTE ON THE AC's RULING SEEKING COMMENTS

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Pursuant to the October 5, 2016, *Assigned Commissioner's Ruling Entering Workshop Reports in the Record and Seeking Comments*, in Proceeding R-13-12-011, the **Order Instituting Rulemaking into Policies to Promote a Partnership Framework between Energy Investor Owned Utilities and the Water Sector to Promote Water-Energy Nexus Programs**, the Green Power Institute (GPI), the renewable energy program of the Pacific Institute for Studies in Development, Environment, and Security, provides these *Comments of the Green Power Institute on the AC's Ruling Seeking Comments*. In these Comments, GPI discusses the September 9, 2016, Water-Energy-Telecommunications Nexus workshop (Attachment F to the Oct. 5, 2016, Ruling), and addresses one of the meta-themes in the proceeding identified in the Ruling, watershed management.

We note that on September 29, 2016, too late to be included in the October 5 Ruling, the Commission held an energy-water nexus workshop that, much like the September 9 workshop, was devoted to the nexus issues associated with watershed management. It is unfortunate that the two workshops will not be discussed in the same set of comments, but circumstances being what they are we will address the September 9 workshop in these comments, and the September 29 workshop in comments due next week, October 26.

Section 3.5 in the October 5, Ruling, addresses the nexus issues between energy and water that arise from watershed-management practices. Many of California's key watersheds are populated by overgrown forests, and in many cases these watersheds contain large numbers of dead trees that are part of the state's tree-mortality crisis, as identified in the Governor's October 30, 2015, *Declaration of a State of Emergency*. Watershed-management operations invariably produce large quantities of wood residuals, particularly from areas replete with dead trees. These residuals make high-quality fuel for biomass power generation, although the cost of conducting the management practices and processing and transporting the residuals is high compared to other sources of biomass fuel in California.

Improved management of California's forested watersheds provides multiple benefits, including water-quality improvement, increased water yield from the watershed, and improved habitat for fish and wildlife. The benefits of improved forest management in the water realm can be complemented by benefits in the energy realm through enhanced operations at hydroelectric systems, and by the use of the residuals of the management operations for renewable energy production.

Watershed-management operations provide immediate benefits for water systems due to increased water production within the watershed. They also provide long-term water-system benefits by reducing the risks of insect and disease infestations and destructive wildfires, both in terms of their frequency, and their intensity. By making the forested watersheds healthier and more fire resilient, not only is the flow of water through the watershed protected, but the quality of the water is also protected because events like wildfires lead to greatly increased rates of sedimentation, which can carry contaminants of various kinds, and can lead to reduced water-storage capacity in downstream reservoirs. Watershed management also provides benefits outside of the water arena, such as using the residuals as renewable biomass fuel for power production, improved air quality and public health, improved habitat for fish and wildlife, and increased employment opportunities in rural areas where unemployment is often high.

The September 9 workshop was focused on the highly destructive Butte Fire, which occurred in the late summer of 2015 in Amador and Calaveras Counties, and included watershed lands that, among other things, feed the water supply of the East Bay Municipal Utility District, the water supply for millions of East Bay consumers. The primary presentation at the workshop was made by Calaveras County representatives, who described both the Butte fire and its aftermath, and a pilot project that the county is pursuing to promote healthy forests and watersheds. Ultimately it is up to land owners and managers to determine whether tracts of watershed land under their control will receive treatment operations. In some cases key watershed lands are owned or managed by electric or water utilities, while in other cases the lands are owned publicly (federal or state) or privately. In any case watershed-management operations are expensive, and lack of funds

is usually the reason cited by land managers who, while recognizing the benefits of treating their lands, nevertheless fail to do so.

The Calaveras County pilot program is designed to promote healthier forests, rangelands, and basins in Calaveras County. The pilot recognizes the central role of the landowner in watershed management, and the fact that lack of funds is usually the greatest impediment to enlightened land management. The legal mechanism that the pilot proposes to employ is the creation of a Resource Conservation District, covering the entire county. The district will provide advice and assistance to landowners and managers, and will act as the focal point for watershed-management projects and proposals.

We note that the proposal includes consideration of a couple of non-conventional technologies for turning forest residuals into energy, torrefication of the residuals into a fuel that can be transported long distances, and the use of small-scale portable generators for onsite electricity production for a variety of applications, including emergency power in disaster situations. These technologies have received a good deal of attention over the years, but they suffer strongly from small scale and cost considerations. It has been difficult enough for the Commission to promote 3 MW biomass plant development through the BioMAT program. Development of even smaller facilities will be even more difficult to accomplish. Due to the scale and immediacy of the tree-mortality crisis in California, we question whether this is the time or place to promote the development of new technologies.

On page 3 of Attachment F to the Ruling, the document asks a series of questions relating to the role and relationship between the water and energy utilities, and the management of the watersheds and water supplies they depend on. It is our hope and understanding that the water and electric utilities that depend on California's watersheds already have relationships with land owners and managers within their watersheds. The first question asks: *How can the water and energy utilities promote better forest and rangeland management? Who should the utilities consult and collaborate with to ensure highest possible water yields for our water and energy systems?* The utilities will have to work

with land owners/managers in their territories to promote healthy and productive watersheds. California has a wealth of information and expertise on land-use management, and the utilities can certainly provide access to these resources for land managers in their territories. Beyond offering encouragement and educational resources to land managers, the most important thing that the land managers need to properly manage their lands is funding. It is relatively easy to show that funds used for prevention, for example in the performance of watershed-management operations, reap large rewards in terms of reduced costs of firefighting, loss-of-property prevention, and post-fire restoration costs. The problem is the difficulty of securing upfront funding in the absence of a disaster, even knowing that the purpose of the funding is to reduce the risk and extent of a much more expensive future disaster. If the beneficiary utilities can help provide or secure funding for watershed-management operations, that would be an enormous incentive to land managers.

The October 5, Ruling, on page 16, asks whether the Commission should require the energy and/or water utilities to conduct watershed-management pilots in their forested watershed lands, either separately or together. The GPI is strongly in favor of conducting watershed-management operations in key watersheds in California, particularly watersheds that are affected by California's tree-mortality crisis. As we have argued above, the key missing ingredient in the performance of watershed-management operations is usually funding. The pilot being pursued in Calaveras County includes a proposed funding source – a countywide Resource Conservation District. Unless the water and energy utilities can act as the funding source for a pilot, it is difficult to see how they would be able to accomplish much. We do not know whether water or energy utilities are the optimal entities for proposing the creation of Resource Conservation Districts, but we would certainly encourage them to advocate for their creation if they are thoughtfully proposed.

The energy-sector focus of the energy-water nexus proceeding relating to watershed management has been the role of healthy watersheds in supplying hydroelectric power. The GPI believes that the energy focus of watershed-management operations should be expanded to include greater consideration of the residuals that are produced in the course of performing watershed-management operations, and the carbon-cycle implications of

various land-management options for watershed lands. Removing dead trees and other overgrowth materials from California's stressed forests protects the remaining forest from losses associated with fire and insect attacks. Land-management operations are expensive, and the use of residuals as biomass fuels can help to underwrite the cost. The use of these kinds of residuals for energy production has a positive effect on the carbon balance by reducing the risk and extent of wildfire damage. For biomass-energy systems the reduction of fire and insect risks in California's forests can have a quantitatively greater positive effect on net total greenhouse-gas emissions than their displacement of fossil fuel.

During the presentation of Resolution E-4805 at the October 13, 2016, Commission Meeting, it was argued that the conversion of forest-management residuals to energy in biomass facilities does not make a positive contribution to greenhouse-gas reductions in California because on the one-hand they displace other renewables (solar) rather than fossil fuels, and on the other-hand the forest-protection benefits can be alternatively obtained by the use of portable incinerators. Both of these arguments depend on the presence of what economists call a zero-sum game, and in neither case does that assumption hold up.

While it is true that biomass generators will produce RECs that might otherwise have to be obtained from solar if the biomass generator were not operating, the fact is that the statutory RPS requirements set a floor on the future demand for renewable energy, not a ceiling. Greenhouse-gas reduction standards are likely to force utilities to go beyond the statutory RPS requirements for renewables, and in the case of PG&E, in whose territory most of the state's tree-mortality high-hazard zones are located, the looming shutdown of Diablo Canyon power plant, with the promise that net greenhouse-gas emissions associated with the utility's energy supply will not be affected thereby, virtually ensure that PG&E will have to procure renewables well in excess of their statutory RPS requirements.

With respect to the argument that use of forest residuals for energy production will not have a protective effect on the state's forests and watersheds because the residuals could just as well be combusted in portable incinerators, possibly at lower cost, that too depends on an assumption of a zero-sum game where there is none. If the total amount of removed

dead trees and residuals in the state is fixed, then the argument holds. However, if the supply of forest removals exceeds the capacity to promptly combust it, then the argument fails, and each increment of disposal capacity contributes to the protection of biomass on the ground. Given the enormity of the tree-mortality crisis in California today, there is no doubt that each and every means of disposal of removed dead trees add to the amount of forest that can be upgraded and protected. Therefore, biomass energy production can indeed be credited with greenhouse-gas benefits relating to creating more resilient forests in California, by helping to encourage the conduct of the forest-management operations that produce the biomass fuel.

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Respectfully Submitted,

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